

Improving barley yields in organic stockless farming systems through innovations in green manure management (Kompetanseprosjekt med brukarmedvirkning)

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Application Number: ES425470 Project Number: -1

Applicant

Project Owner

Project Owner (Norwegian name)	Bioforsk Økologisk
Faculty	
Institute	
Department	
Address	Tingvoll gard
Postal code	NO-6630
City	Tingvoll
Country	Norway
E-mail	okologisk@bioforsk.no
Website	www.bioforsk.no/organic
Enterprise number	988983837
Auditor	Office of the Auditor General
eAdministration	

Project administrator

First name	Turid
Last name	Strøm
Position/title	Director
Phone	+47-404 81 867
E-mail	turid.strom@bioforsk.no
Confirmation	✓ The application has been approved by the Project Owner

Project manager

First name	Sissel
Last name	Hansen
Institution / company (Norwegian name)	Bioforsk Økologisk
Faculty	
Institute	

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Department	
Address	Tingvoll gard
Postal code	NO-6630
City	Tingvoll
Country	Norway
Position/title	Researcher
Academic degree	PhD
Preferred language	Bokmål
Phone	+47-404 81 549
E-mail	sissel.hansen@bioforsk.no

Project info

Project title

Improving barley yields in organic stockless farming systems through innovations in green manure management

Primary and secondary objectives of the project

Main objective

Improved yields of feed barley on stockless farms converted to organic production

Sub objective 1

Investigate the possibility of improving the N cycling and reduce the N loss to the environment, in an organic barley - green manure rotation by use of the green manure crops for biogas production.

Sub objective 2

Investigate key feed quality parameters of barley as influenced by different green manure/biogas strategies in organic stockless systems.

Sub objective 3

Investigate the short term effects of green manure and biogas slurry on soil structure and earthworms.

Sub objective 4

Improve a computer based nutrient plan programme to increase its applicability as decision making tool for green manure and biogas slurry management in organic barley production.

Project summary

Low and fluctuating yield levels of barley on stockless farms converted to organic farming shows that organic feed barley production in Norway is a challenge. This is mainly because of insufficient nitrogen (N) supply, but also problems with soil structure in intensive arable cropping systems. The main source of plant nutrients in organic

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stockless cereal production is from soil organic matter and leguminous green manure crops within the crop rotation. Due to high N concentrations in green manure crops, and current practice with repeatedly mowing and leaving these as green mulch on the stubble, substantial amounts of N from green manure is at risk of being lost from the cropping system. Such losses represent a reduction in fertilizer value of the green manure, and increases potential N pollution to the atmosphere and watercourses.

The main objective of the project is to improve yields of feed barley on stockless organic farms. This is to be achieved through investigations on how selected green manure management and biogas slurry application from digested green manure herbage can improve N cycling and N utilization, and how these management strategies will affect soil structure and key grain quality parameters. The results will be implemented in tools for practical fertilization planning, and contribute towards increased domestic feed barley production to supplying the growing market for organic meat and dairy products.

Funding scheme

Supplementary info from applicant

Programme/ activity	MATPROGRAMMET
Application type	Kompetanseprosjekt med brukarmedvirkning
Other relevant programmes/ activities/ projects	
Discipline(s)/ specialist field	Organic agriculture, nutrient management
If applying for additional funding, specify project number	
Have any related applications been submitted to the Research Council and/or any other public funding scheme	Yes
If yes, please provide further information	The present proposal is an important supplement to proposal: The potential of organic farming practices as a strategy to reduce P and N runoff App. Nr: ES423774. Full applic. will be sent to Miljø 2015 Aug. 2007. and complementary to the suggested project Baking Quality of Norw. org. wheat (UMB)

Progress plan

Main activities and milestones in the project period (year and quarter)

Milestones throughout the project	From		To	
Detailed planning	2008	1	2008	2
Field trials	2008	2	2011	3
Incubation studies and pot trials	2008	2	2008	4

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Modelling N dynamics	2008	1	2011	4
Soil quality assessment	2008	1	2010	3

Project period

From date (yyyymmdd) 20080101

To date (yyyymmdd) 20111231

Budget

Cost plan (in NOK 1000)

	2008	2009	2010	2011	2012	2013	2014	2015	Sum
Payroll and indirect expenses	666	985	1080	1241					3972
Procurement of R&D services	294	455	528	404					1681
Equipment									0
Other operating expenses	195	183	113	115					606
<i>Totals</i>	1155	1623	1721	1760	0	0	0	0	6259

Specification

Cost code (in NOK 1000)

	2008	2009	2010	2011	2012	2013	2014	2015	Sum
Trade and industry	84	210	288	114					696
Independent research institute	861	1138	1163	1356					4518
Universities and University Colleges	210	275	270	290					1045
Other sectors									0
International funding									0
<i>Totals</i>	1155	1623	1721	1760	0	0	0	0	6259

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Funding plan (in NOK 1000)

	2008	2009	2010	2011	2012	2013	2014	2015	Sum
Own financing									0
International funding									0
Other public funding	264	381	405	415					1465
Other private funding	364	481	505	515					1865
From Research Council	527	761	811	830					2929
<i>Totals</i>	1155	1623	1721	1760	0	0	0	0	6259

Specification

Other public funding: - "Fondet for forskningsavgift på landbruksprodukter" Other private funding: - "Forskningsmidler over Jordbruksavtalen": same support as from "Fondet for forskningsavgift" - FiskåMølle: 20 per year - Norgesfôr/Unikorn AS: 20 per year - Felleskjøpet AGRI: 60 per year

Fellowship

Doctoral fellowship

Partners

Partners (institution/company) collaborating as consortium participants

2

Institution/ company	Norwegian University of Life Sciences
Contact person	Tove Fjeld
Contact tel.	64965520
Contact e-mail	tove.fjeld@umb.no
Partner's role	Research activity

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Institution/ company	Res. C. Aarslev, Fac. Agric. Sci., Aarhus Univ.
Contact person	Kristian Thorup-Kristensen

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Contact tel.	+45 89993228
Contact e-mail	Kristian.ThorupKristensen@agrsci.dk
Partner's role	Research activity

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Institution/ company	Dept. of Biotechnology, Lund University
Contact person	Bo Mattiasson
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Contact e-mail	bo.mattiasson@biotek.lu.se
Partner's role	Research activity

Other partners (institution/company)

1

Institution/ company	Norgesfor/Unikorn
Contact person	Erik Harsem
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Partner's role	Research activity

2

Institution/ company	Agellus Miljökonsulter
Contact person	Kjell Christensson
Contact tel.	+46-709482200
Contact e-mail	kjell.christensson@agellus.se
Partner's role	Research activity

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Institution/ company	Norwegian Extension Service
Contact person	Einar Strand
Contact tel.	90203317
Contact e-mail	einar.strand@lfr.no
Partner's role	Research activity

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Institution/ company	Fiskå Mølle
Contact person	Leif Kåre Gjerde

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Contact tel.	+47 51743300
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Partner's role	Financing

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Institution/ company	FK Agri
Contact person	Hans Stokke
Contact tel.	+47 90913347
Contact e-mail	hans.stokke@felleskjopet.no
Partner's role	Financing

Other partners (designated individuals)

1

Name	Øystein Haugerud
Institution/ company	Fylkesmannen Buskerud
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E-mail	OHA@fmbu.no

Attachments

Project description

Filename	Project description organic barley.pdf
Reference	ES425470_001_1_Projektbeskrivelse_20070606

Curriculum vitae (CV) with list of publications

Filename	CV English Sissel Hansen til NFR juni 07.pdf
Reference	ES425470_002_1_CV_20070606
Filename	CV Tormod Briseid.pdf
Reference	ES425470_002_3_CV_20070606
Filename	CV-Kristian Throup-Kristensen-2007.pdf
Reference	ES425470_002_4_CV_20070606
Filename	MAB cv kort 2007.pdf
Reference	ES425470_002_6_CV_20070606

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Filename	CV_gustav Fystro.pdf
Reference	ES425470_002_7_CV_20070606

Statement from core financing companies

Filename	Okologisk kornprosjekt bekreftelse Fiskaa.pdf
Reference	ES425470_014_1_ErklaeringBedrifter_20070606
Filename	Financial contribution - Norgesfor.pdf
Reference	ES425470_014_2_ErklaeringBedrifter_20070606

Referees

Filename	Proposed referees GM.pdf
Reference	ES425470_005_1_Fageksperter_20070606

Grade transcripts (Doctoral and student fellowships)

Filename
Reference

Other items

Filename	Letter of support - Biotech_Lund Universitet.pdf
Reference	ES425470_010_1_Annet_20070604
Filename	Letter of support - Agellus environ consultants.pdf
Reference	ES425470_010_2_Annet_20070604
Filename	Letter of support - Norwegian Agricultural Extension Service.pdf
Reference	ES425470_010_3_Annet_20070604
Filename	Letter of co operation Haugerud.pdf
Reference	ES425470_010_4_Annet_20070606
Filename	Letter of co operation Thorup-Kristensen.pdf
Reference	ES425470_010_6_Annet_20070606
Filename	brev samarbeidsparter FK.pdf
Reference	ES425470_010_7_Annet_20070606
Filename	Sammendrag NOR.pdf
Reference	ES425470_010_8_Annet_20070606

